

EDUCATION & OUTREACH HOMESTAKE UNDERGROUND LABORATORY



SUMMARY BY BEN SAYLER
2/10/06

Goals for Session

- Report to PAC about outcomes from Education and Outreach Workshop on Feb 9.
- Summarize E&O-related LOIs

Education & Outreach

- Visitor Center / Interactive Science Center
- Research Experiences
- Teacher Professional Development & Teacher Preparation
- Distance Education

Overarching Issues

- Mission and Vision
- Optimizing scientist involvement
- Attracting & engaging diverse audience
- Balance between leading-edge research and broader scientific literacy

Who Participated

- Scientists
- K-12 Teachers and Administrators
- Experts in
 - Teacher professional development/preparation
 - Informal science education
 - Distance learning
 - Outdoor/Environmental Ed
 - Local History

Who Participated (con't)

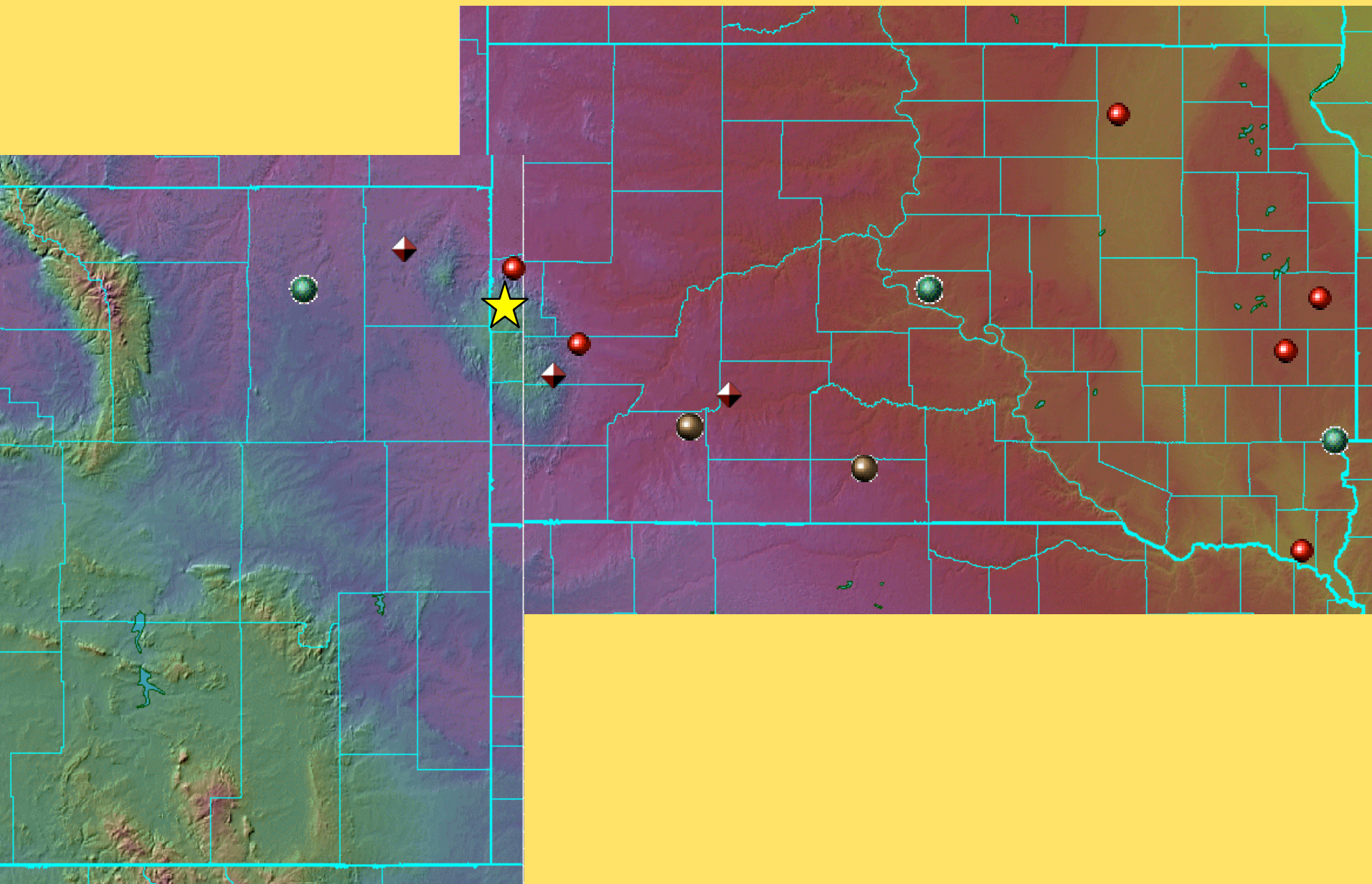
- SD University Leaders
 - Regental
 - Tribal
- State Government
 - Department of Education
 - Economic Development
 - Elected Officials

E&O Workshop Goals

- Strengthen and broaden the E&O community
- Reflect on existing ideas /
Generate new ones
- Think about priorities, funding,
phasing, infrastructure, capacity
...

E&O Workshop Components

- Setting / Context / Prior planning
- Lessons-learned elsewhere
- Breakouts focused on **teachers, students, & general public**
- E&O LOIs



Adapted from the Color Landform Atlas of the U.S.

Prior Planning

- 2001 White Papers
- 2003 Reference Book
- 2004 S-2 Planning
- 2005 S-2 Submission

Visitor Center

- Interactive exhibits
- Nature trails featuring surface geology, ecology, and environmental restoration
- Opportunity to highlight history of the mine, technology of mining, history of science, Lakota culture

Teachers & Students

- Teachers are critical leverage point
- Deepen teachers' content knowledge
- Draw upon expertise and enthusiasm of scientists and existing programs (e.g., QuarkNet)
- Provide opportunities to participate in research
- Appealing destination for summer camps and institutes

Scientists

- "Structures" need to be in place to support scientist involvement, to minimize burden, & to maximize impact
- Deepen scientists' understanding of K-12 and informal science education

Fermilab K-12 Infrastructure



Lederman Science

**Exhibit Hall Designed Specifically for
K-12 School Groups**

Exploratorium & LIGO

Resident Artists

Exhibits at LIGO

incorporated into
university coursework

Some exhibits located at
nearby college

A photograph of a snowy mountain landscape. In the background, a white tower with a clock face stands on a ridge. The foreground and middle ground are covered in snow and dense evergreen forests. The sky is overcast and grey.

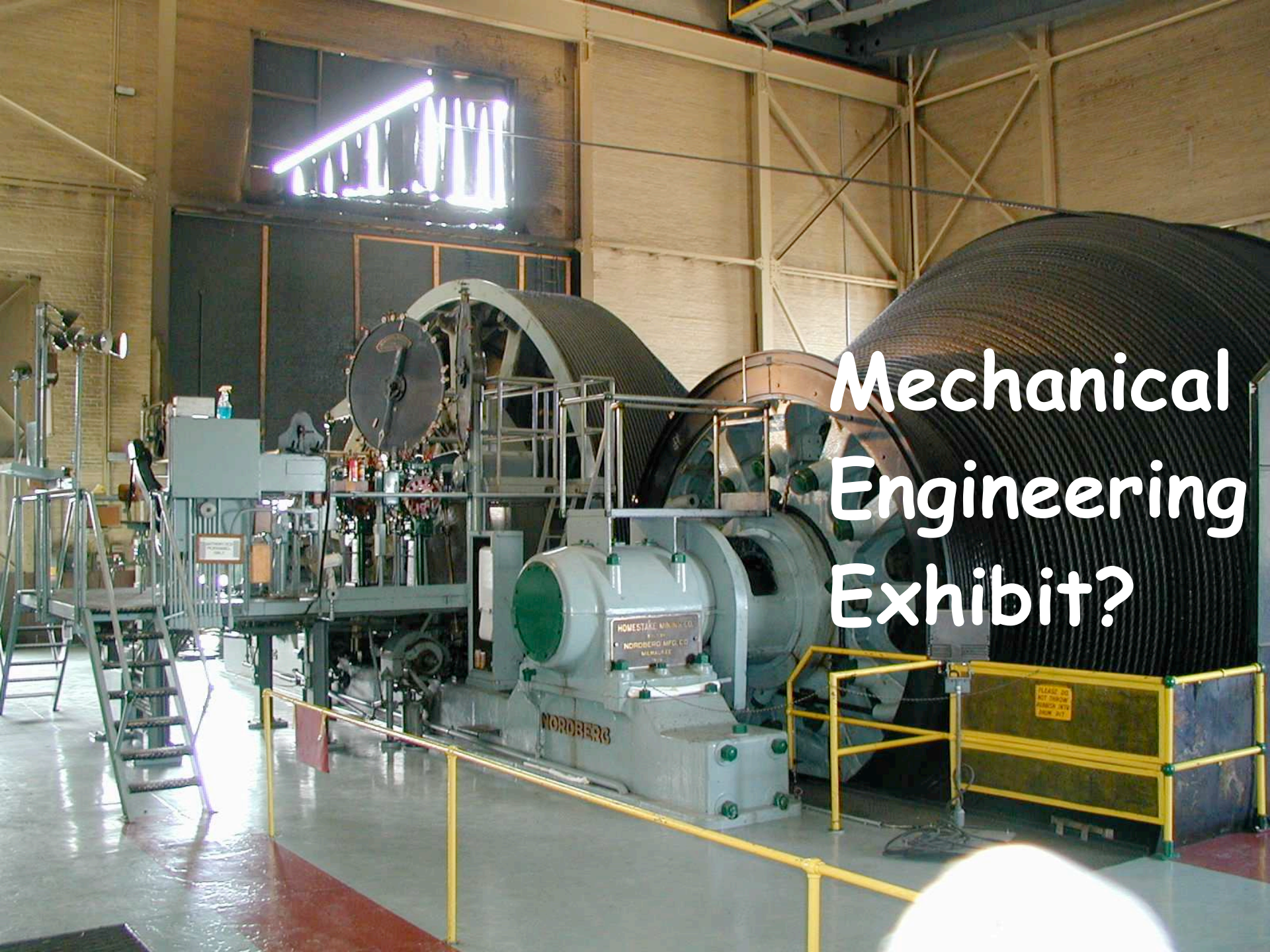
TRAILS TO ...

- Collect surface samples

ESTABLISH BASELINES BEFORE ...

- reopening & dewatering

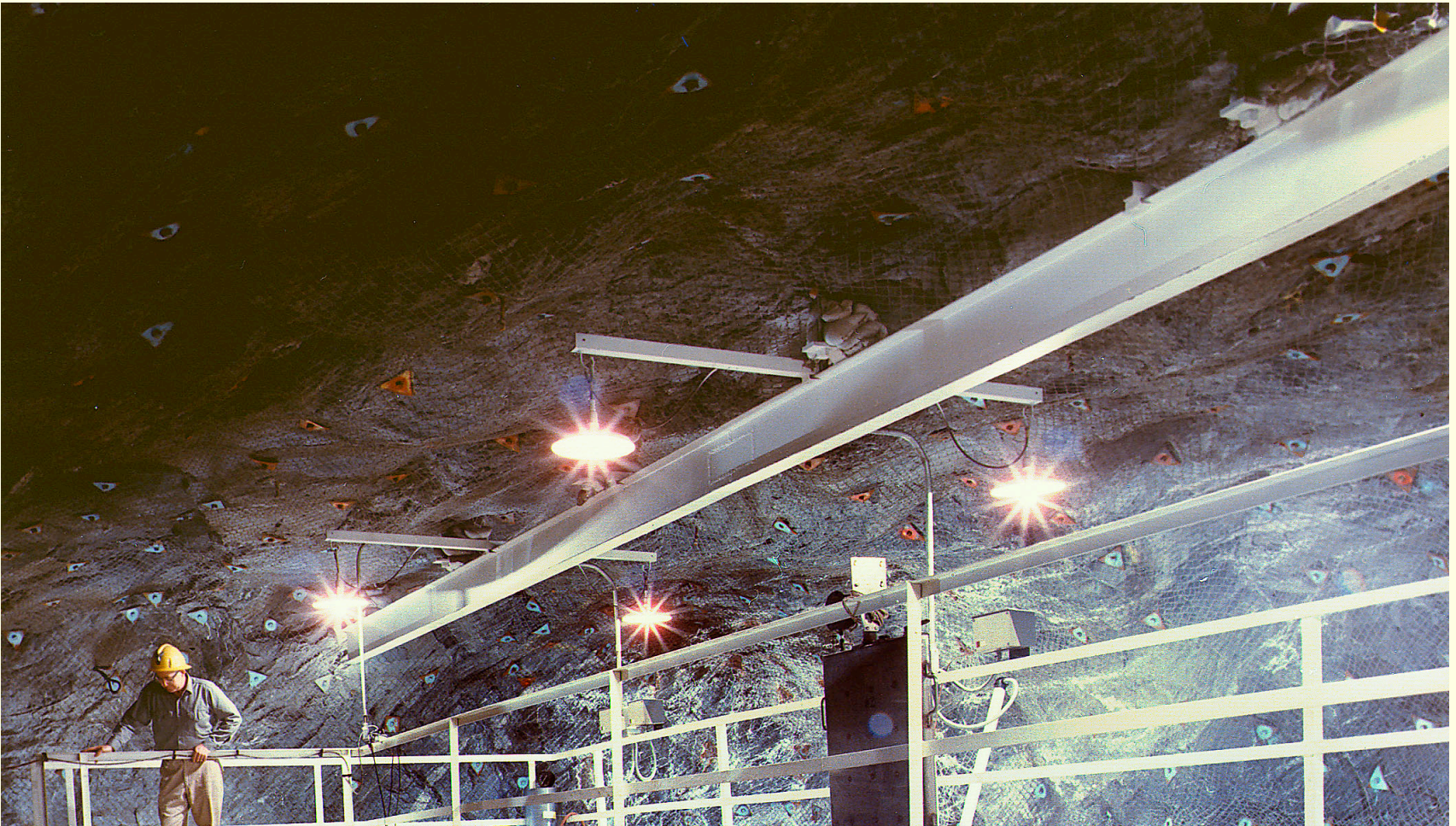
Mechanical Engineering Exhibit?





TEACHER LABORATORY

- Flexible Furnishings
- Tools / Supplies
- Tall Ceilings



Underground Experiences for Public !!
300 - 800 ft

Courtesy of Brookhaven National Laboratory

Underrepresented Audiences

- Native American & other cultures
- Women and Girls
- Rural Communities
- Undergraduates & teaching faculty from small and tribal colleges

E&O LOIs

- Some are highly **infrastructural** in nature
- Demonstrate general interest, specific interests, and capacity
- Recognize that MRE cannot include E&O programming

S1 NSF-MREFC

Infrastructure Surface Underground

Lobby/gathering area	X		X	
Large meeting rooms	X		X	
Small meeting rooms	X		X	
Computer facilities	X		X	
Offices		X		X
Wet labs	X		X	
Clean Labs	X			
Ultra-clean water	X			
People-tracking system	X		X	
Housing	X			

DSU E&O Support Infrastructure

- Steve Graham & colleagues at DSU and other BOR institutions
- Capacity for data storage and retrieval for E&O
- Interface between scientists and K-12/16 audiences

SDSU Homestake Outreach Program (HOP)

- Matt Miller, Larry Browning, and Colleagues at SDSU
- Capacity in teacher professional development
- E&O programming can serve as "laboratory" for educational research

Education & Conference Center

- Larry Stetler, SDSMT
- Attractive site for geology field camps
- Capacity and interest in facility design

Education and Outreach Collaboration

- Susan Pfiffner, UTenn
- Capacity and interest in RETs, REUs, teacher workshops, product development and testing, and assessment.

Hard Rock Underground Mine Mapping and Surveying Teaching Lab

- Diane Wolfgram, Montana Tech
- Need clean walls; safe areas for students
- Better done in a non-commercial facility

Center for Risk, the Community, & the Environment

- Peter Young, RedWater Group
- Nothing similar in the world
- Potential diploma program
- Intersection of science and public management

Homestake
E & O
"Dream Big"
- Al Mann

